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U. S. DEPARTMENT OF AGRICULTURE.

BUREAU OF ANIMAL INDUSTRY.—CIRCULAR 135.

A. D. MELVIN, CHIEF OF BUREAU.

OFFICIALS, ORGANIZATIONS, AND EDUCATIONAL INSTITUTIONS CONNECTED WITH THE DAIRY INTERESTS (1908).

The accompanying lists, compiled under the direction of Ed. H. Webster, Chief of the Dairy Division, contain the names and addresses of the principal officials connected with the dairy industry, and exhibit the facilities offered in the several States for technical dairy instruction.

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UNITED STATES DEPARTMENT OF AGRICULTURE.

JAMES WILSON, *Secretary.*

W. M. HAYS, *Assistant Secretary.*

BUREAU OF ANIMAL INDUSTRY.

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DAIRY DIVISION.

ADMINISTRATION.

ED. H. WEBSTER, *Chief.*

C. B. LANE, *Assistant Chief.*

MISS C. B. SHERMAN, *Librarian.*

DAIRY FARMING INVESTIGATIONS.

Assistant in charge, B. H. Rawl; assistant, Duncan Stuart.

Dairy buildings: J. E. Dorman, architect, K. E. Parks; ventilation experiments, C. R. Potteiger.

Herdbook work: Helmer Rabild and Wm. Hart Dexter.

Southern dairying: S. E. Barnes, J. A. Conover, J. T. Eaton, J. H. McClain, C. O. Moser, A. K. Risser, R. R. Welch, M. C. Crabb, and S. D. Dow.

DAIRY PRODUCTS INVESTIGATIONS.

Assistant in charge, L. A. Rogers, bacteriologist; assistant, W. N. Berg, chemist.

Butter investigations, Albert Lea, Minn., and Washington, D. C.: Bacteriologist, S. H. Ayers.

Swiss cheese investigations, Albert Lea, Minn.: In charge, C. F. Doane; assistant, T. W. Issajeff.

Cheese investigations, Madison, Wis.: Chemist, S. K. Suzuki; bacteriologist, Alfred Larson; cheese maker, J. W. Moore.

Cheese investigations, Storrs, Conn.: Mycologist, Charles Thom; chemist, Arthur W. Dox; cheese maker, F. R. Thomson.

Milk secretion investigations, Columbia, Mo.: Chemist, R. H. Shaw; assistants, J. O. Halverson, A. E. Perkins, and G. C. Payne.

DAIRY MANUFACTURING INVESTIGATIONS.

Assistant in charge, B. D. White; assistant, S. C. Thompson.

Creamery records, Albert Lea, Minn.: Creamery practice, John L. Sherck; assistants (collaborators), P. W. Nobel and J. Bork.

Creamery practice investigations: J. C. Joslin, Robert McAdam, F. L. Odell, J. G. Winkjer, and Thomas Corneliuson.

Market investigations: New York City, C. W. Fryhofer; Chicago, H. J. Credicott; San Francisco, C. L. Mitchel.

MARKET MILK INSPECTION.

Assistant Chief of Division in charge; assistants, Lee H. P. Maynard, Ivan C. Weld, and George M. Whitaker.

RENOVATED BUTTER INSPECTION.

Chief inspector, M. W. Lang, Chicago; assistant, Levi Wells, New York.

STATE DAIRY OFFICIALS.

CALIFORNIA. Secretary and chemist of State dairy bureau, William H. Saylor, 95 Market street, San Francisco; appointed by State dairy bureau. Four inspectors appointed by State dairy bureau for dairies, factories, and markets. Inspections as required. Appropriation, \$10,000. Police work: Prosecuting for violations of State dairy laws. State dairy bureau of three members, appointed by the governor, serving without compensation.

COLORADO. State dairy commissioner, B. G. D. Bishopp, Denver; appointed by the governor. Deputy commissioner, James J. Girardet, Denver. Inspections by commissioner or deputy. Other inspectors for meat and slaughterhouses. Appropriation, \$2,700. Educational work: Institutes, dairymen's meetings, factory instruction. Police work: Cooperation with city authorities, application of the tuberculin test, prosecution of violators of the pure-food law.

CONNECTICUT. Dairy commissioner, Hubert F. Potter, North Haven; appointed by the governor. Three inspectors appointed by the commissioner. Inspections made when necessary. Appropriation, \$4,900 for expenses for two years. This amount is in addition to the appropriation made for work performed at the Connecticut Agricultural Experiment Station, New Haven, at which laboratory all examinations of foods are made.

IDAHO. State dairy, food, and oil commissioner, J. R. Field, Boise; appointed at a joint meeting of the commission and the State board of horticultural inspection. State chemist, Robert H. Gibson. Appropriation, \$4,000. Salary of chemist, \$2,000 additional.

ILLINOIS. State food commissioner, Alfred H. Jones, 1623 Manhattan Building, Chicago; appointed by the governor. Assistant commissioner, H. E. Schuknecht, 1623 Manhattan Building. Twelve inspectors and six chemists appointed by the commissioner.

INDIANA. State food and drug commissioner, H. E. Barnard, Indianapolis; appointed by the State board of health. Five inspectors appointed by the State board of health. Appropriation, \$29,000. Police work: Enforcement of the pure-food law. Food chemist, H. E. Bishop; assistant food chemist, W. D. McAbee.

IOWA. State food and dairy commissioner, H. R. Wright, Des Moines; appointed by the governor. Deputy commissioner, B. C. Iliff, St. Ansgar, appointed by the commissioner. Assistant dairy commissioners, W. B. Johnson, Des Moines; F. L. Odell, Des Moines. Six food inspectors and fourteen milk inspectors. Appropriation for dairy inspection, \$5,000; for food inspection and laboratory work, \$15,000; other work, \$2,000. Educational work: Institutes, scoring contests, dairymen's meetings, factory instruction. Police work: Enforcement of dairy and food laws.

KANSAS. State dairy commissioner, D. M. Wilson, Manhattan; appointed by the governor on recommendation of secretary of State board of agriculture, director State Experiment Station, and professor of dairying in Kansas State Agricultural College. Four inspectors working under State board of health. Inspection of creameries and dairies at least once a year. Appropriation, \$4,000. Educational work: Institutes, scoring contests, dairymen's meetings, factory instruction. Police work: Condemnation of unwholesome dairy products and prosecution of violators of dairy laws.

KENTUCKY. The State pure-food law is enforced by the experiment station and is particularly enforced with regard to milk and dairy products. Head of food division, R. M. Allen, Lexington.

MAINE. Commissioner of agriculture, A. W. Gilman, Foxcroft. Especially charged by law to encourage and promote dairy interests, as are dairy and food commissioners; also charged to employ a dairy expert who shall have control of the work and be especially responsible for it. The work is principally educational, inspection of creameries and dairies, institutes, meetings with granges and organization of cow test and breeders' associations. State dairy instructor, Leon S. Merrill, Solon.

MASSACHUSETTS. Executive officer of the dairy bureau, the secretary of the State board of agriculture. General agent, State dairy bureau, P. M. Harwood, 136 Statehouse, Boston; elected by State board of agriculture. Chemists, B. F. Davenport, 161 Tremont street, Boston; H. C. Emerson, 177 State street, Springfield. Four inspectors, appointed by dairy bureau through its general agent. Inspections twice a year. Appropriation, \$8,000. Educational work. Institutes, scoring contests, dairymen's meetings, lectures before granges and farmers' organizations. Police work: Prosecutions of violators of dairy laws.

MICHIGAN. Dairy and food commissioner, A. C. Bird, Lansing; appointed by the governor. Deputy commissioner, Colon C. Lillie, Coopersville. Eight dairy inspectors, appointed by the commissioner; inspections two or three times a year. Six inspectors of other foods, inspecting bakeries, restaurants, ice-cream plants, etc. Appropriation, \$35,000; fees, \$7,000 additional. Educational work: Institutes, scoring contests, dairymen's meetings, factory instruction. Police work: Prosecutions of violators of dairy laws.

MINNESOTA. Dairy and food commissioner, Edward K. Slater, St. Paul; appointed by the governor. Assistant commissioner, John McCabe, St. Peter. Inspectors appointed by the commissioner, eight for butter, two for cheese, two for milk, two for herd and barn, one for canning factory, and six other food inspectors. Appropriation, \$46,200. Educational work: Scoring contests, dairymen's meetings, and factory instruction; also instruction, one month, in dairy course at agricultural college. Police work: Enforcing pure-food laws.

MISSOURI. Acting State dairy and food commissioner, M. H. Lamb, Columbia; appointed by the governor July 1, 1908. Deputy commissioner is appointed by the commissioner. One city milk and dairy inspector, one creamery inspector, and four food inspectors, all appointed by the commissioner. Enforce all pure-food and drug laws, inspect creameries and cheese factories, and instruct the makers; also hold dairymen's and farmers' meetings and lecture on dairy and farm subjects. Appropriation, \$25,000 for two years.

NEBRASKA. Food commissioner, the governor of the State. Deputy commissioner, J. W. Johnson, Lincoln, appointed by the governor. State chemist, E. L. Redfern, Lincoln. Four inspectors appointed by the deputy commissioner, inspect-

ing methods of testing cream, methods of production, and creameries. Appropriation for dairy inspection, \$10,500; food inspection, \$5,300; laboratory work, \$3,000.

NEW JERSEY. Chief inspector of food and drugs, George W. McGuire, Trenton; appointed by State board of health. Assistant inspectors, appointed by State board of health, S. S. Van Druff, Sussex; W. F. Townsend, Camden; David Bowen, Asbury Park; Jerome Graves, Elizabeth. The chief and four assistant inspectors perform all the work of food and dairy inspection. Appropriation, \$24,000. Police work: Preventing deception and fraud in the sale of food and drug products.

NEW YORK. Commissioner of agriculture (including dairy), Raymond A. Pearson, Albany; appointed by the governor. All other employees of the State department of agriculture are appointed by the commissioner through examination under civil service. First assistant commissioner, George L. Flanders, Albany; assistant commissioners, Henry H. Kracke, acting assistant commissioner, No. 23 Park Row, New York City; S. Brown Richardson, Lowville; E. J. Preston, Amenia, C. E. Sackett, 144 Arcade Building, Utica; C. T. Russell, Munnsville; Verlett C. Beebe, Arcade; George Bernhard, 221 Powers Block, Rochester; James P. Clark, Falconer; J. H. Grant, 715 Mutual Life Building, Buffalo. Four inspectors for butter, 6 for cheese, 33 special agents, inspecting milk, cheese, and food products. Inspections are continuous. Other inspectors include 14 horticultural, 13 veterinary, and 4 bee inspectors. Educational work: Farmers' institutes, dairymen's meetings, and factory instruction. Police work: Enforcing sanitary conditions.

NORTH DAKOTA. Commissioner of agriculture and labor, ex officio State dairy commissioner, W. C. Gilbreath, Bismarck; appointed by the governor. Assistant dairy commissioner, R. F. Flint, Bismarck; appointed by the commissioner of agriculture and labor. Pure-food commissioner, E. F. Ladd, Fargo; appointed by the governor. Inspections once a year. Appropriation for dairy inspection, \$2,000; for food inspection, including laboratory work, \$10,000. Educational work: Institutes, dairymen's meetings, factory instruction, and herd testing. Police work: Enforcing sanitary conditions.

OHIO. State dairy and food commissioner, Renick W. Dunlap, Columbus; elected at general State election. Chief inspector, Charles H. May, Columbus. Two assistant commissioners and six inspectors of dairy and food products, appointed by the commissioner. Appropriation, \$40,950. Police work: Enforcing dairy and pure-food laws.

OKLAHOMA. Pure food, dairy, and drug commission, composed of the president, secretary, and treasurer of State board of agriculture, the State commissioner of health, and the secretary of the State board of pharmacy. The State commissioner of health, Dr. B. F. Hamilton, Guthrie, is the secretary of the pure-food commission. The commission appoints one dairy inspector and two pure-food and drug inspectors. Appropriation, \$5,000. Police work: Cooperation with the city authorities and the State health department in enforcing the law for the enforcement of all pure-food and sanitary provisions. Dairy work is partly educational. All samples of foods and feeding stuffs and all samples of dairy products are sent to the experiment station laboratory.

OREGON. Dairy and food commissioner, J. W. Bailey, room 19 Breeden Building, Portland; elected by the people. Deputy, Bert Pilkington. Appropriation, \$4,800. Educational work: In institutes.

PENNSYLVANIA. Dairy and food commissioner, James Foust, Harrisburg; appointed by the governor. Assistant commissioner, Oliver D. Schock, Harrisburg. Fif-

teen special agents appointed by the commissioner act as inspectors. Appropriation, \$175,000 for two years, which is more than covered by fees, fines, and costs collected. Police work: Enforcement of dairy and pure-food laws and prosecution of offenders.

SOUTH DAKOTA. Food and dairy commissioner, A. H. Wheaton, Brookings; appointed by the governor. Two inspectors, appointed by the commissioner. Appropriation for dairy inspection, \$2,000; for food inspection, \$2,000; for laboratory work, \$1,500; for other work, \$2,500. Educational work: Institutes, scoring contests, dairymen's meetings, factory instruction.

TEXAS. Food and dairy commissioner, J. S. Abbott, Denton; appointed by the governor. Term expires January 1, 1909.

UTAH. Dairy and food commissioner, John Peterson, Salt Lake City; appointed by the governor. Chemist, Harmen Harms. Two inspectors of dairy products and other foods. Appropriation, \$1,000. Police work: Enforcement of the pure-food laws.

VIRGINIA. State dairy and food commissioner, William D. Saunders, Richmond; appointed by the governor. Deputy commissioner, Benjamin L. Purcell, Glen Allen. Chemist, E. W. Magruder, Richmond. Two inspectors of dairy products and other foods. Appropriation, \$7,500. Educational work: Institutes, dairymen's meetings, factory instruction. Police work: Enforcing pure-food laws.

WASHINGTON. Dairy and food commissioner, L. Davies, Davenport; appointed by the governor. Deputy dairy commissioner, L. W. Hanson, Seattle. Chemist, E. Fulmer, Seattle. Deputy dairy and food inspector, Will H. Adams, Spokane. Deputy State drug inspector, George D. Prigmore, Chehalis. All deputies are appointed by the commissioner. Appropriation, \$21,600 for two years. Educational work: Institutes, dairymen's meetings, factory instruction, instruction on the farms in the care of butter, cream, and milk. Police work: Sanitary inspection and sample testing and inspection.

WISCONSIN. Dairy and food commissioner, J. Q. Emery, Madison; appointed by the governor. Assistant commissioner, U. S. Baer, Madison. Second assistant commissioner, H. C. Larson, Dodgeville. One chemist, 3 assistant chemists, and 11 inspectors, appointed by the commissioner, with the approval of the governor, subject to the civil-service law. Two inspectors of other foods. Appropriation for salaries and expenses approximating \$45,000. Educational work: Institutes, aid the dairy school, dairymen's meetings, and factory instruction. Police work: Prosecution of violators of the law.

DAIRY ASSOCIATIONS.

The chief work of dairy associations is educational, but they also take an interest in all matters pertaining to the industry, especially legislation and the enforcement of dairy laws.

Most of the organizations named below publish the proceedings of their annual meetings. These are usually issued separately, but are sometimes included with the reports of the State departments of agriculture. It is now difficult to obtain full sets of reports of the older associations, which embrace much dairy information of a valuable and practical character. The same is true of reports of the American Dairymen's Association (1866-1880) and the Northwestern Dairymen's Association (1867-1883), which were disbanded when their fields of operation had become occupied by the younger associations in the several States.

A considerable part of the expense of holding conventions and publishing reports is met by membership fees, which are generally \$1 a year, and by special subscriptions of private individuals, firms, and towns where the meetings are held; also by receipts from advertisements inserted in the official programmes; but in most States the expense is largely defrayed by annual grants of the legislatures.

Prizes consisting of money and articles useful in the dairy are frequently offered by the supply trade and others for the best packages of butter and cheese exhibited at the meetings.

Following is a list of all dairy associations whose interests cover any considerable part of a State or larger territory:

NATIONAL AND INTERNATIONAL.

National Dairy Union. Organized 1891. Incorporated. Membership 25,000.

Does not receive State aid. Object: Originally, to secure the passage of the present oleo law and since that time it has done considerable work in the enforcing of the same. The organization has been maintained for the purpose of defending the law and preventing its repeal or change in any way. President, S. B. Shilling, 154 Lake street, Chicago. Vice-president, George R. Linn, Chicago. Secretary and treasurer, Charles Y. Knight, 154 Lake street, Chicago. Next annual meeting, date not fixed.

National Creamery Buttermakers' Association. Organized 1891. Not incorporated. Membership, 1,500. President, J. J. Farrell, Carver, Minn. Vice-president, Lauritz Olsen, West De Pere, Wis. Secretary and treasurer, S. B. Shilling, 154 Lake street, Chicago, Ill. Executive committee, the above officers and two additional members, L. S. Edwards, Parkersburg, Iowa, and R. F. Frary, Lapeer, Mich. Annual meeting, date not fixed.

Association of State and National Food and Dairy Departments. Organized 1896. Membership, State and Federal dairy and food-control officials. President, J. Q. Emery, Madison, Wis. Vice-President, H. E. Schuknecht, Chicago, Ill. Secretary, R. M. Allen, Lexington, Ky. Annual meeting, Denver, Colo., August, 1909.

National Association of Ice Cream Manufacturers. Organized 1901. President, John T. Cunningham, 930 West Van Buren street, Chicago, Ill. Vice-president, P. R. Walker, Warren, Pa. Secretary, J. D. Roszell, Peoria, Ill. Treasurer, L. W. McCray, Cincinnati, Ohio. Annual meeting, Memphis, Tenn., January, 1909.

National Dairy Show. Organized September, 1905. Incorporated. Object: Exhibition of modern dairy machinery and appliances, dairy products and dairy cattle, working dairies, and sanitary milk plants. Educational features: Competition in judging contests, meetings of butter and cheese makers, and a national convention of dairymen. Cooperating organizations: Dairy Division of United States Department of Agriculture, agricultural colleges and experiment stations, and associations of breeders of dairy cattle. President, H. B. Gurler, De Kalb, Ill. Vice-president, H. E. Van Norman, State College, Pa. Secretary, E. Sudendorf, room 307, 154 Washington street, Chicago, Ill. Treasurer, Granger Farwell, Chicago, Ill. Superintendent of live stock department, B. H. Rawl, Washington, D. C. General manager, A. J. Glover, associate editor Hoard's Dairyman, Fort Atkinson, Wis. Annual meeting, Coliseum, Chicago, Ill., December 2-10, 1908.

Official Dairy Instructor's Association. Organized 1906. Membership, the dairy instructors and investigators (of college rank) in the agricultural colleges and experiment stations, and the Dairy Division of the United States Department of Agriculture, and the Dominion Department of Agriculture, Canada. Object: To advance the interests of dairy instruction and investigation. President, C. H. Eckles, Columbia, Mo. Vice-president, H. E. Van Norman, State College, Pa. Secretary and treasurer, C. B. Lane, Washington, D. C. Annual meeting, Ithaca, N. Y., held in connection with the Graduate School of Agriculture at Cornell University, July 22, 1908.

American Association of Medical Milk Commissions. See page 25.

International Milk Dealers' Association. Organized October, 1907. Membership, 30. Object: To improve city milk supplies. President, John D. Nichols, Cleveland, Ohio. Secretary-Treasurer, B. D. White, Washington, D. C. Annual meeting in connection with that of National Dairy Show, Chicago, Ill., December 2-10, 1908.

National and State Dairy Inspectors' and Instructors' Association. Organized November, 1907. Membership, 27. Object: To build up and improve the dairy and creamery interests of the United States as a whole and the States severally. President, H. C. Larson, Madison, Wis. Vice-president, Helmer Rabild, Washington, D. C. Secretary and treasurer, B. D. White, Washington, D. C. Annual meeting in connection with the National Creamery Buttermakers' Association.

Certified Milk Producers' Association of America. Organized February, 1908. Membership, 26. President, Stephen Francisco, Montclair, N. J. First Vice-president, George C. Watson, Tully, N. Y. Second vice-president, E. T. Gill, Haddonfield, N. J. Third vice-president, George Woods, Wawa, Pa. Secretary-treasurer, Raymond A. Pearson, Albany, N. Y. Annual meeting, date not fixed.

American Creamery Butter Manufacturers' Association. Organized June, 1908. Membership, 60. Headquarters at Chicago, Ill. Object: To work for honesty in competition, improvement in dairy products, and fairness in transportation charges. President, J. A. Walker, Blue Valley Creamery Co., Chicago, Ill. Vice-president, Mr. Hanford, Sioux City, Iowa. Secretary, George L. McKay, Ames, Iowa. Treasurer, W. T. S. White, Chicago, Ill. Assistant secretary, W. E. Smith, Chicago, Ill. The first of the district meetings was held in August at Omaha, Nebr.; the next at St. Paul, Minn., and others at points in Iowa and Kansas.

International Dairy Federation. Organized September, 1903. Object: Cooperation in dairy matters and discussion of the leading questions of dairy interest in different countries, having especially in view the suppression of fraudulent dealing in the sale of butter and oleomargarin, fostering sanitary milk and dairy products generally, and maintaining the international association. President, Baron Peers, of Nieuwburg, president of the National Dairy Society of Belgium. Secretary-General, L. Gedoelst, professor State Veterinary School, Brussels, Belgium. Headquarters of the Federation, 56 Marie-Louise Square, Brussels.

The Fourth International Dairy Congress. To be held under the auspices of the International Dairy Federation at Budapest, Hungary, June, 1909. Officers of the Congress: President, Count E. Dessewffy of Csernek and Torkeo, M. P. General Secretary, Dr. S. Koerfer, agriculturist, assistant in ministry of agriculture, V. Orszaghaz-ter 11, Budapest. Member for the United States, Ed. H. Webster, Chief of Dairy Division, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C. The subjects to be discussed at the Congress will be under three different sections: (1) Regulation and legislation, (2) hygiene and veterinary science, (3) industry. Regulation of the trade in milk and milk supply, together with its supervision and giving technical instruction in dairying, will form principal items in section 1. In section 2 conditions of production and sale will form principal subjects of debate, and in this connection it will be shown how far milk is the agent in the propagation of disease. The relative value of pasteurized and raw milk will also be discussed. In section 3 manufactures in connection with the milk supply will be dealt with. Utilization of by-products of milk, influence of manure, when applied to fields producing forage, upon the quality of milk and its by-products.

STATE.

CALIFORNIA. *California Creamery Operators' Association.* Organized 1900. Membership 200. Not incorporated. Does not receive State aid. Aided by volunteer subscriptions and by firms interested in and identified with the industry. President, A. Jensen, Eureka. Vice-president, F. H. Daniels, Alameda. Secretary-treasurer, J. H. Severin, 36 Commercial street, San Francisco. Annual meeting, San Francisco, November 12-14, 1908.

COLORADO. *Colorado State Dairymen's Association.* Organized January, 1908. Charter membership 30. Is not incorporated. Does not receive State aid. President, J. L. Hutchinson, box 1418, Colorado Springs. Vice-president, M. E. Penrose, 1712 Blake street, Denver. Secretary, B. G. D. Bishopp, Capitol, Denver. Treasurer, V. I. Prevost, Wabuendo avenue, Pueblo. Local dairy meetings have been held (1908) at Greeley, Boulder, Colorado Springs, Denver, Fort Collins, and La Junta. Numerous dairy institutes are arranged for in several sections of the State and will be participated in by the association. Educational exhibits will be made at county and State fairs and suitable premium lists and scoring contests arranged at these fairs. Annual meeting, Denver, December, 1908.

Denver Dairymen's Association. President, J. K. Sutton, Denver. Vice-president, George McCarroll, Denver. Secretary, C. E. Bull, 1551 West Bryant street, Denver. Treasurer, Storrs Hall, Denver.

Boulder Dairymen's Association. President, W. A. Groom, Boulder. Secretary, L. G. Mann, Boulder.

CONNECTICUT. *Connecticut Dairymen's Association.* Organized 1882. Membership 488. Incorporated 1889. Receives State aid, \$1,500. President, H. G. Manchester, Winsted. Vice-president, W. H. Lee, New Haven. Secretary, J. G. Schwink, jr., Meriden. Treasurer, B. C. Patterson, Torrington. The association has held 28 institute and field meetings. Annual meeting, Hartford, third week in January, 1909.

Connecticut Creamery Association. Organized 1890. Membership 18. Not incorporated. Does not receive State aid. President, H. H. Ellsworth, Windsor. Vice-president, F. H. Stadtmueller, Elmwood. Secretary-treasurer, John M. Williams, Manchester. Annual meeting, Hartford, second Wednesday in January, 1909.

GEORGIA. *Georgia Dairy and Live Stock Association.* Organized 1905 by combining the Georgia Dairymen's Association (1894) with the Georgia Live Stock Breeders' Association (1903). Membership 75. Not incorporated. Does not receive State aid. Commissioner of agriculture assists in printing the reports. President, W. L. Williamson, Commerce. Vice-president, A. M. Soule, Athens. Secretary-treasurer, C. L. Willoughby, Experiment. Educational work assisted by speakers at State Farmers' Institutes. Annual meeting, Athens, October, 1908.

Atlanta Dairymen's Union. President, Ed. L. Wright, Empire Building, Atlanta. Object: Local work and cooperation with the State association.

IDAHO. *The Idaho State Dairy Association.* Organized 1898. Not incorporated. Does not receive State aid. President, H. T. French, Moscow. Vice-president, T. E. Helmbolt, Cambridge. Secretary, A. E. Gipson, Cambridge. Treasurer, J. B. Garfield, Caldwell. J. H. Frandson, dairy specialist. Special prizes are offered for best exhibits and dairy results during 1908. Annual meeting, Caldwell, January 8-9, 1909.

ILLINOIS. *Illinois State Dairymen's Association.* Organized 1874. Membership 400. Incorporated. Receives State aid, \$2,500, appropriated to print annual report (3,000 copies, cloth bound, 350 pages) and for other necessary expenses. President, L. N. Wiggins, Springfield. Vice-president, J. P. Mason, Elgin. Secretary, George Caven, 154 Lake street, Chicago. Treasurer, Adolph Meyer, Greenville. Educational work: Auxiliary meetings at different points in the State, one-day programmes. Annual meeting, Clinton, January 19-21, 1909.

Illinois State Buttermakers' Association has ceased to exist as a separate organization, having been joined with the Illinois State Dairymen's Association.

Illinois State Milk Producers' Institute. Organized 1904. Incorporated. Receives State aid, \$500. Other aid exclusive of membership fees, \$500. President, D. D. Hunt, De Kalb. Vice-president, J. P. Mason, rural delivery, Elgin. Secretary, J. M. MacVean, 184 La Salle street, Chicago. Treasurer, L. E. Mentch, Cary. Educational work: A two-days' institute meeting at Harvard. Annual meeting, ———, January —, 1909.

Illinois Dairy Cattle Improvement Association. Organized 1907. Membership 25. Not incorporated. Does not receive State aid. President, John Stewart, Aurora. Vice-president, T. W. Brophy, Ingleside. Secretary, A. O. Auten, Jerseyville. Treasurer, F. B. Auten, Effingham. Educational work: Dairy trains and other work by the Illinois State Dairymen's Association. Annual meeting, date not fixed.

INDIANA. *Indiana State Dairy Association.* Organized 1891. Membership 165. Incorporated July, 1907. State aid, \$500; from supply houses, \$200. President, D. B. Johnson, Mooresville. Vice-president, I. B. Calvin, Kewanna. Secretary-treasurer, H. J. Fidler, Lafayette. Educational work: One dairy train was run over the Monon Route, which covered six days. Annual meeting, Purdue University, Lafayette, January 5, 6, 1909.

Northern Indiana Dairy and Creamery Association. Organized January, 1906. Membership 35. Not incorporated. Receives State aid indirectly as auxiliary to State Dairy Association. President, W. V. Clifford, Kewanna. Vice-president, Samuel Schlosser, Plymouth. Secretary-treasurer, A. H. Compton, New Carlisle. Educational work: A good meeting, at South Whitely, was held December 21, 1907; about 300 present.

Southern Indiana Dairy and Cooperative Creamery Association. Organized January, 1906. Membership 120. Not incorporated. Does not receive State aid. President, James Bobbert, Eckerty. Vice-president, John Heitman, Holland. Secretary and treasurer, H. A. Reynolds, Huntingburg.

Eastern Indiana Dairy Association. Organized 1906. Membership 30. President, O. W. S. Warnock, Portland. Vice-president, C. F. Cather, Anderson. Secretary and treasurer, W. B. Woolman, Pendleton. (Last year's report—no returns this year.)

IOWA. *Iowa State Dairy Association.* Organized 1877. Membership 500. Not incorporated. Does not receive State aid. President, W. B. Barney, Hampton. Vice-president, L. S. Edwards, Parkersburg. Secretary, W. B. Johnson, Des Moines. Treasurer, F. M. Brown, Cedar Rapids. Educational work: District meetings at Oelwein, New Hampton, and Guthrie Center during the year. Annual meeting, Waterloo, November 18-20, 1908.

Eastern Iowa Buttermakers' Association. Membership 50. Not incorporated. Does not receive State aid. President, F. W. Stephenson, Lamont. Vice-president, R. J. Erb, Masonville. Secretary, E. E. Mittlestadt, Delaware. Treasurer, J. B. Feldman, Dyersville. Educational work: A joint meeting at Oelwein of the auxiliary associations of buttermakers, Eastern, Central, and North Central.

North Central Iowa Buttermakers' Association. Organized September, 1902. Membership 30. Does not receive State aid. President, J. J. Brunner, Charles City. Vice-president, H. E. Forrester, Fredericksburg. Secretary-treasurer, O. E. Buehrer, Alta Vista.

KANSAS. *Kansas State Dairy Association.* Organized 1888. Membership 300. Not incorporated. Does not receive State aid; membership fees sole source of revenue. President, Thomas A. Borman, Topeka. Vice-president, C. S. Graybell, Abilene. Secretary-treasurer, I. D. Graham, Topeka. Educational work: Cooperative with the farmers' institute department of the State Agricultural College. Annual meeting, Topeka, second week in January, 1909.

KENTUCKY. *Kentucky Dairy Cattle Club.* (Formerly State Dairymen's Association.) Organized February, 1906, with 27 charter members. Membership 250. Incorporated March 23, 1908. Does not receive State aid; no other aid than membership fees. President, H. D. Rodman, Shelbyville. Vice-president, Charles Bright, Eminence. Secretary-treasurer, J. J. Hooper, Lexington. Educational work: Local meetings held from time to time in different sections of the State. The club is in a very thriving condition and is endeavoring to build up Kentucky's dairy interests in every possible manner. Auxiliary associations: Fayette County Dairymen's Association, R. D. Collins, Lexington, secretary. Hardin County Dairymen's Association, W. A. Jenkins, Elizabethtown, secretary. Lincoln Dairymen's Association, B. H. Van Allman, secretary, Stanford. McCracken County Dairymen's Association, S. A. Fowler, Paducah, president. Spencer County Dairymen's Association, Charles Huff, secretary, Taylorsville. Henry County Dairymen's Association, Charles Bright, secretary, Eminence. Annual meeting, in connection with State Farmers' Institute, 1909.

MAINE. *Maine Dairymen's Association.* Organized 1898. Membership 200. Not incorporated. Receives State aid, \$500. President, F. S. Adams, Bowdoinham. Vice-president, W. G. Hunton, Winthrop. Secretary, Leon S. Merrill, Solon. Treasurer, R. Alden, Winthrop. Educational work: Waterford Cow Testing Association, South Waterford. Kennebec Valley Cow Testing Association, Winthrop. Oxford Center Cow Testing Association, Canton. Next annual meeting, December 8-10, 1908.

MASSACHUSETTS. *Massachusetts Creamery Association.* Organized 1895. Membership 50. Not incorporated. Does not receive State aid. State board furnishes speakers at the annual meetings. President, Watson H. Wright, Easthampton. Vice-president, F. J. Humphrey, Amherst. Secretary-treasurer, Auret M. Lyman, Montague. Educational work: Quarterly meetings in which the State College cooperates and furnishes speakers; cow testing associations. Annual meeting, Northampton, December, 1908.

MICHIGAN. *Michigan Dairymen's Association.* Organized 1885. Membership 510. Incorporated 1895. Receives State aid, \$500; other aid, exhibition space and contributions to premium fund, \$495. President, Colon C. Lillie, Coopersville. Vice-president, W. H. Bechtel, Caro. Secretary-treasurer, S. J. Wilson, Flint. Educational work: Four auxiliary meetings each year. Next annual meeting, Grand Rapids, February 17-19, 1909.

Grand Traverse Dairymen's Association. Organized 1901. Membership 36. Not incorporated. Does not receive State aid. President, William F. Grant, R. F. D. 2, Traverse City. Vice-president, Claude Cole, Kalkaska. Secretary-treasurer, James Harris, R. F. D. 2, Traverse City. Annual meeting, Traverse City, February, 1909.

The Oceana County Dairymen's Association. Organized April, 1908. Object: Stimulation and development of the dairy industry throughout that section of Michigan. Meetings are held in each dairy community in the county. President, E. K. Smith, Hart. Vice-presidents, E. M. Fuller, G. O. Anderson, A. J. Kellogg, and E. B. Moore. Secretary-treasurer, E. B. Myers, New Era.

MINNESOTA. *Minnesota State Dairymen's Association.* Organized 1877. Membership 450. Incorporated. Receives State aid, \$2,000. President, Robert Crickmore, Owatonna. First vice-president, W. F. Schilling, Northfield. Second vice-president, F. D. Currier, Nicollet. Secretary, J. R. Morley, Owatonna. Treasurer, J. M. Jack, Stanton. Educational work: Local meetings of dairymen held during 1907 at 18 different places in the State. Annual meeting, Montevideo, January 19-21, 1909.

Minnesota State Butter and Cheese Makers' Association. Organized 1894. Membership 480. Incorporated March, 1895. State aid about \$500. President, M. P. Mortenson, R. F. D. 2, Cokato. Vice-president, H. J. Rosenau, Meriden. Secretary, Edwin Hed, 530 Nicollet avenue, Mankato. Treasurer, W. L. Parkin, Northfield. Annual meeting, St. Anthony Park, St. Paul, November 23-25, 1908.

Eastern Minnesota Dairymen's and Buttermakers' Association. Organized 1904. Not incorporated. Does not receive State aid. President, E. O. Blomquist, R. F. D. 3, Center City. Vice-president, S. P. Christensen, Rush City. Secretary, J. E. Lindblad, White Bear Lake. Treasurer, Erhard Lindblad, R. F. D. 5, North Branch. Vice-president, Chicago County, S. Swanson, Shafer. Vice-president, Isanti County, N. Truleson, R. F. D. 1, North Branch. Vice-president, Washington County, A. W. Johnson, Forest Lake. Educational work: Meetings of dairymen at various points, held under the auspices of the association. Annual meeting, date not fixed.

Red River Valley Dairymen's Association. Organized 1903. Membership 109. Not incorporated. Branch of the Minnesota State Dairymen's Association, and receives a little aid from that body yearly, otherwise it is self-supporting. President, William Robertson, Crookston. Vice-president, C. B. Goodale, Fertile. Secretary, George L. Austin, St. Hilaire. Treasurer, C. O. Carlson, Erskine. Annual meeting, St. Hilaire, November 11, 12, 1908.

Minnesota Cooperative Dairies Association. Organized June 12, 1907. Membership 75. Incorporated October, 1908. Does not receive State aid. President and general manager, J. R. Morley, Owatonna. Vice-president, C. Soley, Maple Plain. Secretary, C. A. Morse, Sauk Center. Treasurer, Andrew French, Plainview. Educational work: Frequent local dairy meetings. Annual meeting, St. Paul, February, 1909.

MISSOURI. *Missouri State Dairy Association.* Organized 1890. Membership 200. Not incorporated. Does not receive State aid. President, P. P. Lewis, Crescent. Vice-president, W. S. Dille, Holden. Second vice-president, E. J. Roberts, Bolckow. Secretary, R. M. Washburn, Columbia. Treasurer, D. A. Chapman, Warrensburg. Educational work: One dairy train for two weeks. Speakers from State board of agriculture. Annual meeting, Columbia, January 7-8, 1909.

Missouri Butter and Cheese Makers' Association. Organized October, 1907. Membership 30. Not incorporated. Does not receive State aid. Some aid from

the State Dairy Association. President, W. S. Dille, Holden. Vice-president, L. A. Lyon, Rockville. Annual meeting, date not fixed.

MONTANA. *Montana State Dairymen's Association.* Organized 1906. Membership 50. Not incorporated. No State aid. President, John Oliver, Cascade. Vice-president, W. H. Thompson, Chinook. Secretary-treasurer, W. J. Elliott, Bozeman. Educational work; Farmers' institute and two months each spring devoted to special creamery meetings. Annual meeting, Bozeman, January 12, 13, 1909.

NEBRASKA. *Nebraska Dairymen's Association.* Organized 1885. Membership 232. Not incorporated. Receives State aid, \$1,000. President, A. E. Wilkinson, Lincoln. Vice-president, John Sneddon, Eagle. Secretary-treasurer, S. C. Bassett, Gibbon. Educational work; Farmers' institutes only. Annual meeting, Lincoln, January, 1909.

NEW HAMPSHIRE. *Granite State Dairymen's Association.* Organized March, 1884. Membership 82. Incorporated March, 1903. State aid, \$700, annual appropriation. President, A. J. Richardson, Littleton. Vice-presidents, G. H. Yeaton, Dover, and Arthur B. Hough, Lebanon. Secretary, Frank Reed Sanders, Bristol. Treasurer, E. E. Bishop, Littleton. Educational work; Aids in forming cow-test associations. Annual meeting, Contoocook, date not fixed.

NEW YORK. *New York State Dairymen's Association.* Organized 1877. Membership 425. Incorporated 1881. Does not receive State aid. Self-sustaining from advertising. President, Dr. W. H. Jordan, Geneva. Vice-president, H. H. Wing, Ithaca. Secretary, T. E. Tiquin, Sherburne. Treasurer, W. E. Griffith, Madrid. Member of executive committee, J. B. Frederickson, Little Falls. Annual meeting, Utica, at the Armory, December 8-11, 1908.

NORTH CAROLINA. *North Carolina State Dairymen's Association.* Organized 1905. Membership 48. Not incorporated. Does not receive State aid. President, R. H. Gower, Clayton. Vice-president, none. Secretary-treasurer, John Michels, West Raleigh. Annual meeting, Raleigh, August 25-28, 1908.

OHIO. *Ohio Dairymen's Association.* Organized 1894. Membership 265. Not incorporated. Does not receive State aid. President, J. D. Nichols, 1312 Euclid avenue, Cleveland. Vice-president, J. O. Winters, Greenville. Secretary-treasurer, E. S. Guthrie, Columbus. Educational work; Holds local dairy meetings. Annual meeting, Columbus, February 12-14, 1909.

OKLAHOMA. *Oklahoma State Dairymen's Association.* Organized January, 1908. Membership 50. President, J. E. Nissley, Guthrie. First vice-president, J. F. Ball, Shawnee. Second vice-president, Emil Bracht, Oklahoma. Secretary, Roy C. Potts, Stillwater. Treasurer, Fred. Felber, El Reno. Educational work: An auxiliary organized at Oklahoma City April 13, 1908, known as the Oklahoma County Dairy Association; president, Emil Bracht; vice-president, R. Peebley; secretary, S. J. Conner, Oklahoma. Annual meeting, date not fixed.

OREGON. *Oregon Dairymen's Association.* Organized 1892. Membership 204. Not incorporated. President, F. L. Kent, Corvallis. Vice-president, A. A. Bonney, Tygh Valley. Second vice-president, Mrs. S. A. Yokum, Marshfield. Secretary and treasurer, W. L. Crissey, Portland. Annual meeting, Portland, December 10, 11, 1908.

PENNSYLVANIA. *Pennsylvania Dairy Union.* Organized 1898. Membership 300. Not incorporated. Receives occasional aid from the State. President, W. E. Perham, Niagara. Vice-president, J. G. Reist, Mount Joy. Secretary, H. E. Van Norman, State College. Treasurer, M. E. Reeder, Muncy. Annual meeting, Harrisburg, January 25-29, 1909.

Creamery Association of Eastern Pennsylvania and Vicinity. Reorganized 1896. Membership 100. President, J. I. Carter, Chatham. Vice-president, J. C.

Sharpless, London Grove. Secretary-treasurer, George R. Meloney, 1937 Market street, Philadelphia. Annual meeting, Philadelphia, first Saturday in January, 1909.

SOUTH CAROLINA. *South Carolina Live Stock Association (including dairy).* Organized 1902. Membership 132. Not incorporated. State aid, \$500. President, Thomas Taylor, jr., Columbia. Vice-presidents, D. M. Crosson (dairy cattle), C. H. Carpenter (dairy manufactures), post-offices, respectively, Leesville and Easley. Secretary-treasurer, J. M. Burgess, Clemson College. Annual meeting, Columbia, February 3-5, 1909.

SOUTH DAKOTA. *South Dakota Dairymen's and Buttermakers' Association.* Organized March, 1906. Membership 150. Not incorporated. Does not receive State aid. President, E. H. Baldwin, Letcher. Vice-president, H. L. Suhr, Wist. Secretary-treasurer, Albert Andersen, Savo. Annual meeting, Sioux Falls, October 21, 22, 1908.

TEXAS. *Texas State Dairymen's Association.* Organized 1894. Membership 90. Not incorporated. Does not receive State aid. President, B. F. Frasher, Cleburne. Vice-president, C. H. Alvord, College Station. Secretary-treasurer, C. O. Moser, Denison. Educational work: Dairy meetings are held at any point in the State where there is sufficient interest among the farmers to request such a meeting; at at least ten places in the State such meetings have been held. Annual meeting, date not fixed.

Texas Creameries Association. Organized August, 1907. Membership 35. Not incorporated. Does not receive State aid. President, Charles H. Alvord, College Station. Secretary-treasurer, R. H. Eckhardt, Yorktown. Annual meeting, Agricultural and Mechanical College, College Station, March, 1909.

UTAH. *Utah Dairymen's Association.* Organized 1894. Membership 75.

VERMONT. *Vermont Dairymen's Association.* Organized 1869. Membership 625. Not incorporated. State aid, \$1,000, and about \$400 from advertising. President, C. F. Eddy, Stowe. Vice-presidents, B. A. Hatt, Ryegate; J. B. Candon, Pittsford. Secretary, F. L. Davis, North Pomfret. Treasurer, M. A. Adams, Derby. Annual meeting, Burlington, January 6-7, 1909.

VIRGINIA. *Virginia State Dairymen's Association.* Organized November, 1907. Membership 44. Incorporated January, 1908. President, Joseph A. Turner, Hollins. Vice-president, E. Lee Goss, Somerset. Secretary-treasurer, Prof. W. D. Saunders, Richmond. First meeting was held in Blacksburg December 20, 21, 1907. Annual meeting, Richmond, October 7, 8, 1908.

WASHINGTON. *Washington State Dairymen's Association.* Organized 1894. Membership 150. Not incorporated. Does not receive State aid. President, E. J. Ross, Bothell. Vice-president, I. S. Thomle, Stanwood. Secretary-treasurer, Ira P. Whitney, Pullman. Annual meeting, Chehalis, December 17, 18, 1908.

Washington State Buttermakers' Association. Organized December, 1907. Membership 25. Not incorporated. Does not receive State aid. President, H. W. Maynard, Olympia. Vice-president, H. L. Reid, Centralia. Secretary-treasurer, Ira P. Whitney, Pullman. Educational work: Butter scoring contests held at different times during the year by the association. Annual meeting, Chehalis, December 16, 1908.

Western Washington Dairymen's Protective Association. Organized August, 1908. Membership 50. President, A. E. Smith, Orillia. Secretary, Oscar Christopher, Christopher. Treasurer, W. J. Lunn, Auburn.

WEST VIRGINIA. *West Virginia State Dairy Association.* Organized 1903. Membership 120. Not incorporated. President, B. F. Mann, Fort Springs. Vice-president, J. R. Wells, Bens Run. Secretary-treasurer, ———. Educational work: Four dairy schools in cooperation with State board of agriculture and the college of agriculture. Annual meeting, Charleston, February 2-4, 1909.

WISCONSIN. *Wisconsin Dairymen's Association.* Organized 1872. Membership 200. Not incorporated. State aid, \$4,000. President, F. H. Scribner, Rosendale. Vice-presidents, all former presidents. Secretary, A. J. Glover, Fort Atkinson. Treasurer, H. K. Loomis, Sheboygan Falls. Educational work: Some one-day meetings in the month of June. Annual meeting, Barron, February 10-12, 1909.

Wisconsin Cheesemakers' Association. Organized 1893. Membership 450. Incorporated 1899. Receives State aid, \$600. President, J. B. McCready, Sheboygan. Vice-president, Fred Marty, Monroe. Secretary, U. S. Baer, 22 North Doty street, Madison. Treasurer, F. E. Carswell, Richland Center. Annual meeting, Milwaukee, January 6-8, 1909.

Wisconsin Buttermakers' Association. Organized 1901. Membership 425. Incorporated December, 1902. State aid, \$600; other aid by advertising in programmes and contributions to premium fund. President, E. C. Dodge, Lake Mills. Vice-president, L. H. Schroeder, Chelsea. Secretary, J. G. Moore, Madison. Treasurer, G. Spiers, Eau Claire. Annual meeting, Eau Claire, February 9-12, 1909.

Southern Wisconsin Cheesemakers' Association. Organized 1901. Membership 320. Not incorporated. State aid, \$1,000 per year. President, S. J. Stauffacher, Monroe. Vice-president, Joseph Karlen, jr., Monroe. Secretary, Henry Elmer, Monroe. Treasurer, Jacob Regez, jr., Monroe. Educational work: Meetings are held with patrons of cheese factories as needed, regarding cleanliness of milk, cans, and factories. An instructor is working nearly all the year. Annual meeting, date not fixed.

Brown County Buttermakers' Association. Organized May, 1904. Not incorporated. Does not receive State aid. President, James T. McGill, Little Suamico. Vice-president, H. Boerschinger, De Pere. Secretary, Lauritz Olsen, West De Pere. Treasurer, C. Tyler, West De Pere. Annual meeting, Green Bay, January, 1909.

Dane County Buttermakers' Association. Organized October, 1907. Membership 36. Not incorporated. Does not receive State aid. President, H. B. Hoi-berg, Brooklyn. Vice-president, O. Olsen, Mount Horeb. Acting secretary, J. G. Moore, Madison.

Dunn County Dairymen's and Breeders' Association. Organized December, 1908. Membership 60. Not incorporated. Does not receive State aid. President, E. C. Jacobs, Elk Mound. Vice-presidents, one in every township. Secretary, H. W. Quilling, Menomonie. Treasurer, W. A. Clark, Menomonie. Educational work: Dairy meetings at different points in the State in connection with the county institute in some cases.

Wisconsin Dairy Manufacturers' and Milk Producers' Protective Association. Organized July, 1907. Specific object. To look after the interests of Wisconsin creamery and dairy men in the matter of rates for transportation of cream. President, F. A. Seeber, Waterloo. Vice-president, W. A. Roach, Waterloo. Secretary, J. G. Moore, Madison. Treasurer, H. Sorge, Reedsburg. Executive committee: C. A. Atwood, Waupun; W. E. Blumenstein, Sullivan; W. Schneider, Johnson Creek. Meeting, Chicago, Ill., early in September, 1908.

CANADIAN.

ONTARIO. *Dairymens' Association of Western Ontario.* Organized 1867. Membership 330. State aid, \$2,000 per annum. President, John Brodie, Mapleton. First vice-president, J. J. Parsons, Jarvis. Secretary-treasurer, F. Hems, London. Educational work: Eight district meetings, 132 patrons' meetings, 1907-8; work in conjunction with the Ontario department of agriculture to improve the quality of western Ontario dairy products and sanitary condition of cheese factories and creameries; instructors visit farms of patrons and also give instruction in milk production. Chief dairy instructor for western Ontario, Frank Hems. Annual meeting, Brantford, January 13-14, 1909.

Eastern Ontario Dairymen's Association. Organized 1869. Membership 300. Incorporated by act of Parliament, 1877. State aid, \$2,000 per annum; some private contributions occasionally. President, J. R. Dargarel, Elgin. Vice-president, H. Glendenning, Manilla. Secretary, R. G. Murphy, Brockville. Treasurer, J. R. Anderson, Mountain View. Educational work: About thirty special dairy meetings have been held with good results. Annual meeting, Prescott, January, 1909.

CITY MILK SHIPPERS.

The Philadelphia Milk Exchange. Organized 1886. Membership 250. Incorporated 1886. President, L. D. Sloan. Vice-president, H. Scott. Secretary, Joseph H. Miller, 1009 Columbia avenue. Treasurer, H. Dolfinger.

Chicago Milk Shippers' Union. Organized 1897. Membership 600. Not incorporated. Revenue from membership fees and donations only. President, Hiram Holcomb, Sycamore, Ill. Vice-president, L. Robbins, McCool, Ind. Secretary, H. B. Farmer, 99 Randolph street, Chicago. Treasurer, S. B. Woods, Crown Point, Ind. Educational work: Addresses at various points in the State by the secretary of the association; one or more meetings each year for lectures and discussions. Annual meeting, Chicago, last Monday in February, 1909.

Five States' Milk Producers' Association. Organized 1898. Membership 2,500. Object: To have a voice and influence in fixing prices paid to producers for milk shipped to New York, Boston, and Chicago markets. President, Ira L. Snell, Kenwood, N. Y. Vice-president, O. P. Moore, Roxbury, N. Y. Secretary-treasurer, H. T. Coon, Homer, N. Y. Annual meeting, ———.

Boston Cooperative Milk Producers' Company. Organized 1904. Membership 2,000. Incorporated July 19, 1904. President, S. H. Abbott, Wilton, N. H. Vice-president, C. D. Sage, North Brookfield, Mass. Secretary, W. A. Hunter, 35 Stafford street, Worcester, Mass. Treasurer, J. D. Tyler, South Berlin, Mass. Members of company ship milk to the Boston market. Annual meeting, third Tuesday in January, 1909.

Dairymen's League. Organized August 24, 1907. Membership 1,730, and rapidly increasing. Incorporated September, 1907. Object: To have a voice and influence in fixing prices paid to producers for milk shipped to New York, Boston, and Chicago markets. President, J. Y. Gerow, Washingtonville, N. Y. Vice-president, W. Tallman, New Paltz, N. Y. Secretary, H. Youngs, Goshen, N. Y. Treasurer, Lewis Hardin, Sussex, N. J. Annual meeting, Middletown, N. Y.

Consolidated Milk Exchange. President, J. A. McBride, Sussex, N. J. Vice-president, W. B. Conklin, New York City. Secretary and treasurer, Joseph Laemmle, New York City. Principal office, Warren, Morgan and Bay streets, Jersey City, N. J. New York office, 6 Harrison street, New York.

DAIRY INSTRUCTION.

In the prominent dairy States and in several others the State agricultural colleges and some other institutions conduct dairy schools in which they offer short courses in the different branches of dairying. Instruction continues a few weeks, and is given by lectures, laboratory practice, and work in the dairy. It includes the principles of breeding and feeding of dairy cattle, practical exercise in testing milk, and the manufacture and care of dairy products; in some cases, also, the pasteurization of milk and a brief study of dairy bacteriology. There are few entrance requirements.

All of the instruction given in the short courses is offered to the students taking longer dairy courses and the full college courses in agriculture, and these have opportunity to pursue advanced work and to specialize along lines in which they are most interested.

As a rule, all the work in the creamery and cheese-factory short courses bears directly upon these industries, while in the farm-dairy courses subjects less closely related to dairying are usually taken.

The names of the institutions at which instruction in dairying is given, the kind and amount of the work, as well as the season when offered, together with the names and addresses of instructors in charge, to whom requests for further information may be sent, are stated below:

ALABAMA. *Alabama Polytechnic Institute.* College course, dairying, sophomore year, September 6 to December 20. This work consists of two hours per week lectures and four hours per week laboratory work. Sophomore year, January 1 to March 7, four hours per week judging dairy cattle. Senior year, March 7 to June 1, two hours per week in lecture work in dairy farming. Address Prof. Dan T. Gray, Auburn.

Tuskegee Normal and Industrial Institute. (Colored.) Regular course, farm dairying, two years. Short course of two weeks for farmers. Dairy extension work is carried on with the Jesup wagon, which is a traveling school of agriculture, giving dairy instruction throughout the country. Address Prof. George W. Carver, Tuskegee.

ARKANSAS. *University of Arkansas.* College course, one term, nineteen weeks, four hours per week required of all sophomores in the agricultural course. Two-year course in agriculture, sixteen weeks, twenty-eight lectures and thirty-two laboratory periods devoted to dairying. Elective courses, dairy cattle, herd formation and management, milk testing, city milk supply, butter making, cheese making, factory management, scoring butter and cheese. Work of dairy extension carried on through farmers' institutes. Address Prof. V. A. Hooper, Fayetteville, Ark.

CALIFORNIA. *University of California.* Regular college course, junior year, eight hours' practice, one hour lecture. Instruction upon the university farm at Davisville. Short course of eight weeks, October 5 to November 25, 1908. Object: To give an insight into the principles underlying the production of pure milk and the manufacture of milk products, and to afford an opportunity of making and handling milk products under the instruction of successful operators. Two lectures daily for eight weeks. Practice in butter and cheese making, milk testing, dairy bacteriology, and machinery four to six hours daily, including Saturday. Address Prof. Leroy Anderson, superintendent of University Farm School, Davisville.

California Polytechnic School. Regular course in dairying, second year, three periods recitation, four periods laboratory work for twenty weeks. This includes work in dairy machinery, milk testing, and butter and cheese making. Nineteen students now taking the work. Work in judging, breeding, and feeding dairy cattle is given with the regular animal husbandry classes as follows: Breeds and judging, five periods recitation and eight periods practice per week for twelve weeks; breeding, three periods recitation per week for twelve weeks; feeding, three periods per week for twenty weeks. A new and well-equipped creamery is now in process of construction, and the regular courses will be enlarged and short courses added in 1908-9. Address Prof. C. W. Rubel, San Luis Obispo.

COLORADO. *State Agricultural College.* College course, one half-term sophomore year. Theory five hours per week; practice ten hours per week for one-half term. Short course five weeks of three hours per day. Dairy extension through farmers' institutes. Address Prof. H. M. Bainer, Fort Collins.

CONNECTICUT. *Connecticut Agricultural College.* College course, dairying, third year, fall term, two hours per week. This course consists of an introduction to dairying and includes lectures on the principles of breeding, and selection and feeding dairy cattle, with laboratory practice in testing milk and its products. Breeding, fourth year, fall term, two hours lectures per week. Feeding, fourth year, fall term, five hours lectures per week. Dairy breeds, fourth year, fall term, three hours lectures per week. Practice given in judging animals from the dairyman's standpoint; practice given in use of score cards of the different breeds. Dairying, fourth year, spring term, five hours per week; laboratory work nine hours per week. Breeds and stock judging, fourth year, winter term, three hours per week; laboratory work six hours per week. Winter school short dairy and creamery courses give special attention to the modern city milk supply and the making of both the hard and soft types of American cheese, particularly Cream and Camembert. Address Prof. J. M. Trueman, Storrs.

DELAWARE. *Delaware College.* Dairying, elective, first term, senior year. Market milk, lecture two periods, practice one period per week. Four-year and two-year special courses, same as college course. Address Prof. H. Hayward, Newark.

FLORIDA. *University of Florida.* College course, freshman year, sixteen weeks, three hours per week. Short course, dairying, same as long course. Dairy extension through farmers' institutes. Address Prof. W. L. Floyd, Gainesville.

Colored Normal School. Dairy instruction afforded throughout the school year of eight months. The dairy course has recently been much enlarged and improved. Address Fremont H. Cardozo, Tallahassee.

GEORGIA. *State Agricultural College.* The new agricultural building will be completed and ready for occupancy September 1, 1908. About one-half of first floor will be devoted to the dairy department, including offices, lecture rooms, refrigerating plant, milk-testing laboratories, and butter and cheese making room and milk-bottling room. The new dairy barn erected for the use of a working dairy herd has several valuable features, and cost complete \$1,025. Students have been given about three months' work during the winter in farm dairy practice. In another year it is hoped to add materially to the dairy department, both in buildings, live stock, machinery, and facilities for teaching dairying. Address Prof. Milton P. Jarnagin, Athens.

IDAHO. *College of Agriculture, University of Idaho.* One-year course in dairying includes butter making, milk testing, cheese making (including a study of American cheese and its manufacture), dairy bacteriology, scoring of butter, and dairy practice. College course, freshman year, farm dairying; sophomore year, testing and milk inspection. Elective courses: Junior year, cheese making; senior year, first semester, milk technology and scoring butter and cheese; second semester, a study of the manufacture of ice creams and ices, also factory management. Some experimental work has been done this year in comparing various moisture tests for determining water in butter, also on the economic production of butter fat, including a comparison of the various feeds common in Idaho. Address J. H. Frandson, Moscow.

ILLINOIS. *College of Agriculture, University of Illinois.* Department of dairy husbandry, dairying required in freshman year, three hours per day, nine weeks. Elective courses: Milk, dairy cattle, factory management, city milk supply,

dairy bacteriology, cheddar cheese, fancy cheese, feeding and care of herd, purebred herds, dairy-farm management, butter making, development of the dairy industry. One hundred and ninety-seven students taking all courses together. Dairy extension work, testing cows, feeding demonstrations, and creamery work. Address Prof. W. J. Fraser, Urbana.

INDIANA. *School of Agriculture, Purdue University.* Dairy school, four years' course, eight weeks' course, two weeks' course, one-week course, 45 pupils. College course, sophomores, one semester, thirty-nine hours lectures and one hundred and seventeen hours laboratory. Juniors, two semesters, seventy-three hours lectures and two hundred and nineteen hours laboratory. Seniors, two semesters, one hundred and forty-six hours lectures and two hundred and nineteen hours laboratory. Short courses: Eight weeks' course, 21 pupils. *a. Farm Dairy Course*, one hundred and sixty-four hours lectures and one hundred and forty hours laboratory. *b. Creamery Course*, one hundred and four hours lectures and two hundred hours laboratory. Two weeks' course for advanced butter makers (new this year), thirty-eight hours lectures, thirty-eight hours laboratory. One-week course for farmers, twelve hours lectures and six hours laboratory. The two weeks' short course is strictly for advanced butter makers and eight-week creamery students who desire to become recipients of certificates. The one-week short course is given to farmers. It deals with economic and sanitary milk production. Dairy extension by herd tests, dairy meetings, dairy and creamery inspection, butter-scoring contests, and special dairy trains. Address Prof. O. F. Hunziker, Lafayette.

IOWA. *State College of Agriculture and Mechanic Arts.* Dairy school, four years' course, one-year's course, two-weeks' course; 337 pupils in attendance. College course, freshman year, thirty-two hours lectures, forty-eight hours laboratory; sophomores, sixty-four hours lectures, ninety-six hours laboratory; juniors, sixty-six hours lectures, one hundred and thirty-three hours laboratory; seniors, eighty-eight hours lectures, four hundred and forty hours laboratory, counting credits for thesis and research. Additional elective work is offered in one year's course, two hours daily lectures and four hours laboratory; in two weeks' course, thirty-six hours lectures and forty-eight hours laboratory; short course, January 4 to 16, in butter making and farm dairying, including principles and practice; dairy extension work in testing cows, organizing test associations, and institute work. Address Prof. John Bower, Ames.

KANSAS. *Kansas State Agricultural College.* Department of dairy husbandry, college course, second year, fifty-five hours lectures; forty-four hours laboratory. Third year, twenty-seven hours lectures, forty-four hours laboratory. Fourth year, eighty-two hours lectures, two hundred and sixty-four hours laboratory. Fifth year, one hundred and thirty-five hours lectures, two hundred and twenty hours laboratory, not counting credit for thesis. Two ten weeks' special courses beginning January 6. Dairy extension, cooperative herd testing, organizing herd-testing associations, farmers' institutes, regular bimonthly educational butter-scoring contests, regular dairy schools' and boys' cooperative experimental work. Under way, among other experiments, the following: Comparison of butter moisture testers, and working out details of a new moisture test; comparing present methods of determining acidity and butterfat; a critical study of natural and commercial starters, their propagation and uses. An experiment has been outlined in conjunction with the agronomy, bacteriological, and chemical departments, intended to take several years for its completion, relating to the economic production of dairy products and the conservation of soil fertility resulting from dairy farming. Address Prof. J. C. Kendall, Manhattan.

KENTUCKY. *State University of Kentucky*. College course, dairying, offered all agricultural students, spring term, junior year, three hours lectures, six hours practice per week. Advanced dairying, winter term, senior year, two hours lectures with laboratory periods as arranged later. Short course, winter term, three hours per week class room and six hours laboratory per week. Extension work in farmers' institutes, dairy meetings, and inspection of creameries. The dairy work will be enlarged as rapidly as possible. A well-equipped farm dairy laboratory is now being added to the facilities of this department. Address Prof. J. J. Hooper, Lexington.

LOUISIANA. *Southern University and Agricultural and Mechanical College*. Dairy school, two years' course; one-half the time is given to theory and one-half to practice; 18 students. Aim of the course of instruction in dairying is to prepare the students to become practical dairymen, whether they want to furnish milk for city consumption or want to make butter on the farm. Feeding includes the study of such rations as will give the best results in the milk pail by feeding Louisiana products as far as practicable. Upon the necessity for cleanliness the most stress is laid. They test the milk of each cow for fat content and thus learn how to find out the quality of butter each cow produces in a year. Address Prof. Charles E. Roos, Southern University, New Orleans, La.

Louisiana State University and Agricultural and Mechanical College. A course of lectures is given in farm dairying, giving instruction in care of milk and utensils, explaining principles involved in creaming milk by the gravity and the centrifugal processes, and giving full instruction in regard to running farm separators and the manufacture of butter and cheese in the farm dairy. Students receive practical training in the most advanced methods of creaming milk, ripening cream, churning, working and packing butter, manufacture of sweet-curd cheese, and measuring the value of milk by the Babcock test and the lactometer. Students receive instruction in regard to characteristics of the various breeds of dairy cattle, their origin and comparative adaptability for the dairy. Lectures are given upon the points desirable in animals intended for the dairy. The students have practice work in judging dairy stock. Lectures are given covering both the scientific and practical phases underlying the principles of feeding. Practice work is given in compounding rations and estimating the comparative value of foodstuffs. Address Thomas D. Boyd, President, Baton Rouge.

MAINE. *University of Maine*. College course. Dairying in the junior year, first semester, two hours per week—one-half lectures, one-half practice. Second semester, two hours lectures and seven hours practice per week. Elective, in senior year. School course, thirty hours lectures and seven hours practice per week during one semester. Short course, four weeks, thirty-two hours lectures and eighteen hours practice per week. Dairy extension by reading courses and lectures at farmers' institutes and grange meetings. Address Prof. P. A. Campbell, Orono.

MARYLAND. *Agricultural College*. College course, dairying, junior year, third term, ten weeks, three hours practice per week. Two years' course, third term, two hours lectures, three hours practice per week. Short course, winter, ten weeks. Dairy extension by farmers' institutes. The department has during the past year conducted experiments on "causes and remedies of bitter and tainted milk;" various methods of feeding ensilage; churning sweet cream butter and churning graded cream from dairies having been scored with the Government score card. Address Prof. C. W. Melick, College Park.

MASSACHUSETTS. *Agricultural College.* College course, dairying, sophomore year, thirty-two hours lectures; senior year, elective, twenty-eight hours lectures, sixty hours' practice. Short course, ten weeks, beginning January 2, dairy farming, creamery practice, and city milk service. A fundamental study of the effect of feeds on composition of butter fats engages a large amount of time and will extend over a number of years, carried on under the Adams fund. Address Prof. William P. Brooks, Amherst.

MICHIGAN. *State Agricultural College.* Dairy school. Three winter courses—creamery, six weeks; cheese making, four weeks; farm dairying, eight weeks; 58 creamery students, 7 cheese-making students, and 120 farm-dairying students. College course, dairying, sophomore year, twelve weeks; one and one-half hours theory and two hours practice per week. Senior year, thirty-six weeks; five hours theory and ten hours practice per week. Address Prof. R. S. Shaw, Dean of Agriculture, East Lansing.

MINNESOTA. *College of Agriculture, University of Minnesota.* Dairy school, creamery, farm dairy, cheese making, winter, four weeks. College course, one and one-half years class work, one year practice. Short course, six weeks practice in judging and lectures on dairy husbandry. Dairy extension work by lectures at meetings of patrons of creameries and cheese factories. Address Prof. T. L. Haecker, St. Anthony Park, St. Paul.

MISSISSIPPI. *Agricultural and Mechanical College.* College course, dairying, freshman year, one term, seven hours per week; sophomore year, two terms, four hours per week; senior year, one-half term, three hours per week. Short course in farm dairying for four weeks during the second term; one hundred and eleven students in short course and regular college course. Address Prof. J. S. Moore, Agricultural College.

MISSOURI. *College of Agriculture and Mechanic Arts, University of Missouri.* College course, elements of dairying required one semester, freshman year, thirty-four hours lectures, fifty hours practice. Elective, one hundred and two lectures and one hundred and two periods of laboratory practice. Short course, two months, beginning first week in January, two hours lectures, four hours practice per day; 145 students in short course and regular college course. Dairy extension work by lectures in farmers' institutes and branch short courses and materials for popular distribution by State board of agriculture. Experimental work in progress: 1. Factors causing variation in cows' milk in cooperation with the Dairy Division, United States Department of Agriculture. 2. The use of food by cows of high and low dairy capacity. 3. Comparison of amount of nutrients required to produce a pound of fat in milk and on the same animal in the form of body weight. 4. Effect of manner of feeding, age of breeding, and other factors on the size and development of dairy cattle. Address Prof. C. H. Eckles, Columbia.

MONTANA. *State College of Agriculture and Mechanic Arts.* Dairy school, special creamery course, one month, beginning February. Twelve students. College course, dairying given in freshman, junior, and senior years. Special farmers' short course of one week beginning January 27; attendance (1908) 36. Dairy extension work in cooperation with creameries of the State with a view to improving dairy herds. Assistance at farmers' institutes in developing the dairy industry in the State, also six weeks each spring spent in visiting creameries of the State that send special calls for meetings. Address Prof. W. J. Elliott, Bozemann.

NEBRASKA. *Industrial College and School of Agriculture, University of Nebraska.* Dairy school, long course, twenty-four weeks, begins November 4, four hours lectures and two hours practice per week. College course first and second years

sixteen weeks each, with four hours practice and two hours lectures per week. Short course, dairying, nine weeks, beginning January 2, four hours practice and two hours lectures; 400 students in all courses. Dairy extension work in farmers' institutes. Address Prof. A. L. Haecker, Lincoln.

NEW HAMPSHIRE. *College of Agriculture and Mechanic Arts.* Dairy school, ten weeks beginning January 5, three hours laboratory and two hours recitation daily; 8 students. Four years' course, junior year, two lectures and six hours laboratory per week for seventeen weeks; 4 students. Two years' course, lecture and six hours laboratory work per week for sixteen weeks; 9 students. Several elective courses offered to both four and two year students; 8 students, in all 29 students. Dairy extension work: Addressing Grange meetings, farmers' institutes, and organizing test associations. Address Prof. Fred Rasmussen, Durham.

NEW JERSEY. *State Agricultural College.* College course, senior year, two terms, lectures and laboratory work, and laboratory work in dairy and milk testing rooms, stock judging. Short courses, three months, beginning the first week in December. The course includes lectures in milk testing, butter making, stock judging, making of rations, and laboratory practice in all branches. No specific dairy extension work, although the professors frequently lecture on dairy husbandry before farmers' institutes and other meetings. Address Prof. F. C. Minkler, New Brunswick.

NEW MEXICO. *College of Agriculture and Mechanic Arts.* College course, dairying, first semester junior and senior years, one hour theory, two hours practice daily. Agricultural extension work. Address President Luther Foster, Agricultural College.

NEW YORK. *State College of Agriculture at Cornell University.* College courses given in the following subjects: Composition of milk, butter making, cheese making, fancy cheese making, market milk and milk inspection, elementary dairy bacteriology, advanced dairy bacteriology, dairy mechanics' investigations. These courses represent one to four hours per week each, and altogether would require more than half of a student's time for two years. The work is about one-half in the class room and one-half in the laboratories. Animal husbandry instruction requires four hours per week throughout the year. Capacity about 100 students. Winter dairy course includes instruction in composition of milk, butter making, cheese making, fancy cheese making, market milk handling, dairy mechanics, dairy bacteriology, elementary chemistry, diseases of animals, feeds and feeding. This course begins early in December, continues twelve weeks, and requires all of the time of a student. The work consists of about three-fourths practice and one-fourth lectures and recitations. Capacity 150 students. Farm dairying given to students taking the short winter course in general agriculture, three hours per week, or one-fifth of a student's time; includes milk testing and farm butter making; two-thirds of this is practice. Capacity 75 students. Dairy extension work by correspondence and reading course lessons. Address Department of Dairy Industry, College of Agriculture, Ithaca.

NORTH CAROLINA. *College of Agriculture and Mechanic Arts.* College course, freshman year, spring term, thirty hours lectures, sixty hours practice; senior year, dairying elective, six hours per week. Two-year agricultural course, first year, fall term, thirty lecture periods, ninety hours practice. Short course in agriculture and dairying, eight weeks, beginning January 7. Dairy extension work by correspondence and farmers' institute work. The dairy experimental work carried on during the past year was as follows: 1. Finding a cheap substitute for milk

for calf rearing. 2. Finding the best construction of refrigerators and sterilizers for small dairymen. 3. A study of the relative efficiency of cream shipping cans. 4. A study of the relative value of corn stover and cotton-seed hulls for milk production. Address Prof. John Michels, West Raleigh.

Agricultural and Mechanical College for the colored race. Four years' dairy course. College course four years, equally divided between theory and practice. Short course, four weeks in winter. Address Prof. P. E. Robinson, Greensboro.

NORTH DAKOTA. *North Dakota Agricultural College.* College course, farm dairying, senior year, sixty hours lectures, seventy-four hours practice. Three-year farm husbandry course, sixty hours lectures, seventy-four hours practice. Short course, farm dairying, winter, ten weeks, thirty hours lectures, forty-eight hours practice; 60 students. Address Prof. J. H. Shepperd, Fargo.

OHIO. *Ohio State University.* Dairy school, twelve weeks' course beginning January 5. Special two weeks' courses are given during January and February. Special ten weeks' course in dairy farming, elective only to students in the short course of agriculture, two lecture periods and two half-day laboratory periods per week. In the two-year agricultural course elementary dairying required first term; dairy equipment, second term; farm dairying, third term, two lecture and two laboratory periods per week. College course in agriculture, dairying required first term, junior year, two lecture and two laboratory periods per week. College course, electives in junior and senior years, two lectures and two three-hour laboratory periods per week. Special work is given in the manufacture of butter, cheese, ice cream, etc., testing of milk and its products, dairy mechanics, and dairy equipment. Household dairying, spring term, two hours per week. Milk inspection, first term, two hours per week. Dairy extension work, one man devotes his entire time to such work. Address Prof. Oscar Erf, Columbus.

OKLAHOMA. *Oklahoma Agricultural and Mechanical College.* College course, dairying, junior year, winter term, thirty lectures, forty hours practice. Electives: While class-room instruction is given only one term, yet opportunity is given at all times to students who desire to specialize in dairy or creamery work to spend a portion of each day in the creamery butter-making room where from 3,000 to 10,000 pounds of butter are made every week. Address Prof. Roy C. Potts, Stillwater.

OREGON. *Oregon State Agricultural College.* College course in dairy husbandry, dairying in sophomore, junior, and senior years; lectures, text, and practice. Dairy school ten weeks, lectures and practice, designed for inexperienced men. Short course, two weeks, for experienced men; lectures and demonstration. Home dairying for domestic-science students, three credits for one semester. Address Prof. F. L. Kent, Corvallis.

PENNSYLVANIA. *School of Agriculture and Experiment Station.* College course in dairy husbandry, a total of one hundred and eighty-seven hours lectures and recitations and four hundred and forty-two hours laboratory practice during junior and senior years in butter, cheese, and ice-cream making, dairy cattle, farm and factory management, dairy cattle and product judging, market milk, and inspection work. Two hours lectures and four hours practice required of all agricultural students. Winter courses, twelve weeks, begin December 1, milk production, factory and farm butter, cheese, and ice-cream making, testing, judging, breeding, and feeding dairy cattle. All courses 99 students. Special work, farmers' week, beginning December 29. Commercial creamery and dairy herd in connection with dairy school. Extension work, herd tests, butter makers' educational contest. Address Prof. H. E. Van Norman, State College.

RHODE ISLAND. *Rhode Island College of Agriculture and Mechanic Arts.* College course, dairy practice, lectures and laboratory, junior year, seventy-two hours, 2½ credits for first half year required of agricultural students. Senior year, thirty-six hours, 1 credit second half year, elective for agricultural students in animal husbandry. Short course in agriculture, dairy practice, laboratory work, second year, first term, thirty-six hours, 1 credit. Address President Rhode Island College of Agriculture and Mechanic Arts, Kingston.

SOUTH CAROLINA. *Clemson Agricultural College.* College course, dairying, junior year, seven months, four hours theory, four hours practice per week. Dairy extension work, in farmers' institutes. Address Prof. D. O. Nourse, Clemson College.

SOUTH DAKOTA. *South Dakota Agricultural College.* Four-year dairy course leading to the degree B. S. A., fifteen hours dairy lectures and fifteen hours laboratory work each week during two years; advanced dairy work in the laboratories. One-year dairy course, leading to a dairy certificate, thirteen hours lectures and daily practice in college creamery are required per week; students may specialize in butter or cheese making. Two weeks winter course for experienced creamery men. Address Prof. C. Larsen, Brookings.

TENNESSEE. *State Agricultural and Mechanical College, University of Tennessee.* Dairy school, creamery, farm dairy, judging, principles of dairying, two weeks in February; 17 students. College course, sophomore year, principles of dairying, winter term, two lectures and one practice period per week; senior year, dairy farming, three times per week, spring term. Summer school, principles of dairying, dairy practice and dairy farming, two weeks in June. The instruction in the summer school is adapted to teachers in the county and city schools and is given for the purpose of creating a wider interest in dairy education. Dairy extension work by farmers' institutes and three farmers' conventions held in different parts of the State. Address Dairy Department, Agricultural and Mechanical College, Knoxville.

TEXAS. *Agricultural and Mechanical College of Texas.* College course, junior year, one term, twelve weeks, two hours theory and two and one-half hours practice required of all courses in agriculture. Senior year, elective, one term, twelve weeks, three hours theory and two and one-half hours practice per week in dairy bacteriology and two terms advanced dairying, three hours theory and two and one-half hours practice per week. Two-year course in agriculture required one term, second year, three hours theory and two and one-half hours practice. Address Prof. Charles H. Alvord, College Station.

UTAH. *Agricultural College of Utah.* College course, junior year, eighteen weeks dairying, two-thirds practice, three hours per week. Three-year course, third year, first term, eighteen weeks. Short winter course, four weeks dairying, one lecture, three hours practice per day, for farmers and factory men. Address Prof. T. E. Woodward, Logan.

VERMONT. *University of Vermont and State Agricultural College.* College course, dairying, senior year, winter, four weeks, five hours per week, two-thirds lectures, one-third practice; 50 students. Short dairy course, eight weeks; 30 students. Experimental work. Address Prof. R. M. Washburn, Burlington.

VIRGINIA. *Agricultural and Mechanical College.* College course, dairying, two terms, one lecture, five hours practice per week, freshman year; 31 students. Short course, two terms, one lecture, three hours practice per week. Dairy-extension work in farmers' institutes. Address Prof. W. K. Brainerd, Blacksburg.

Hampton Normal and Agricultural Institute. (Colored.) Regular course, dairying, boys, ten periods lectures; girls, twelve periods lectures and twelve periods practice. Special agricultural course, three years, two months dairy practice, four hours daily. Graduate three-year course, four months dairy practice, four to six hours daily and sixty forty-minute periods, class work. Dairy-extension work through nature-study bureau. Address Prof. E. A. Bishop, Hampton.

WASHINGTON. *State College of Washington.* Dairy school, creamery, and cheese factory, winter, eight weeks. Winter short course in agriculture, farm dairying, ten weeks, four hours per week. School of elementary science, farm dairying, nineteen weeks, two hours per week. College course, nine courses offered, covering all phases of dairying, lectures, and laboratory work, extending throughout the college year; 102 students in all. Dairy-extension work, traveling dairy schools of one week each in the leading dairy sections of the State. Address Prof. Ira P. Whitney, Pullman.

WEST VIRGINIA. *College of Agriculture, West Virginia University.* College course, dairying, six courses of twelve to fourteen weeks each, one-third lectures, two-thirds practice. Two courses in advanced dairy work. Short course for farmers, winter, four weeks; 34 students. Dairy-extension work in dairy schools of one week each, in various counties. Address College of Agriculture, West Virginia University, Morgantown.

WISCONSIN. *College of Agriculture, University of Wisconsin.* Dairy school: 1. Winter course, November to January, twelve weeks. 2. Swiss cheese course, two weeks in February. 3. Summer course, March to November (any ten weeks). 4. Farm dairy course, December to March, fourteen weeks. 5. Long course, September to June, each year. 6. Farmers' course, two weeks. College course required, freshman year; elective during sophomore, junior, and senior years, half time theory and half time laboratory, covering all phases of dairying; 790 students in all. Dairy-extension work in butter and cheese scoring exhibits. Address Prof. E. H. Farrington, Madison.

Dunn County School of Agriculture. Regular course, dairying, first year, winter, twelve weeks, one-fourth lectures, three-fourths practice. Short course, dairying, winter, twelve weeks. Dairy-extension work in farmers' institutes. Address Prof. James A. Wilson, Menomonie.

Winnebago County School of Agriculture and Domestic Economy. Short winter course in dairying and one of the regular studies in the first year. Time is about equally divided between theory and practice. About 40 students took the subject of dairying. Address K. L. Hatch, Principal, Winneconne.

MEDICAL MILK COMMISSIONS.

The American Association of Medical Milk Commissions. Organized June, 1907. Dr. Henry L. Coit, President, Newark, N. J. Secretary, Dr. Otto P. Geier, 124 Garfield place, Cincinnati, Ohio.

Medical Milk Commission of Essex County, N. J. Organized April, 1893. Chairman, Dr. Thomas W. Harvey. Secretary, Dr. Floy McEwen, 299 Belleville avenue, Newark.

New York Medical Milk Commission. Organized November, 1896. Chairman, Dr. L. Emmet Holt. Secretary, Dr. John H. Huddleston, 126 West Eighty-fifth street, New York, N. Y.

Milk Commission of the Hartford County Medical Society, Hartford, Conn. Chairman, Dr. Walter G. Murphy. Secretary, Dr. R. S. Starr, 75 Pratt street, Hartford, Conn.

- Milk Commission of the Philadelphia Pediatric Society.* Organized January, 1899. Chairman, Dr. J. P. Crozer Griffith. Secretary, Dr. Samuel McC. Hamil, 1822 Spruce street, Philadelphia, Pa.
- Milk Commission of the Medical Society of County of New York.* Organized 1900. Chairman, Dr. E. K. Dunham. Secretary, Dr. Rowland G. Freeman, 205 West Fifty-seventh street, New York, N. Y.
- Milk Commission of Medical Society, County of Kings, Brooklyn, N. Y.* Organized March, 1901. Chairman, Dr. W. A. Northridge. Secretary and treasurer, Dr. David Myerle, 510 Bedford avenue, Brooklyn.
- Milk Commission of the Monroe County Medical Society of Rochester, N. Y.* Organized 1901. Secretary, Dr. R. M. Moore, 74 South Fitzhugh street, Rochester.
- Milk Commission of the Elmira Academy of Medicine.* Organized April, 1902. Chairman, Dr. C. W. M. Brown. Secretary, Dr. Rose G. Loop, 54 South Main street, Elmira, N. Y.
- Milk Commission of the Medical Society of the County of Albany, Albany, N. Y.* Organized May, 1902. Chairman, Dr. James P. Boyd. Secretary, Dr. Henry L. K. Shaw, 198 Washington avenue, Albany.
- Milk Commission of the Milwaukee Medical Society, Milwaukee, Wis.* Organized January, 1903. Secretary, Dr. Albert W. Meyers, 141 Wisconsin street.
- Milk Commission of the Washington Medical Society of the District of Columbia.* Chairman, Dr. W. M. Sprigg.
- Milk Commission of Hennepin County Medical Society, Minneapolis, Minn.* Secretary, Dr. Lester W. Day.
- Milk Commission of Children's Hospital Society of Chicago.* Chairman, Mr. Ernest Bicknell. Secretary, Dr. A. Belcham Keyes, 100 State street, Chicago.
- St. Louis Pure Milk Commission.* Organized February, 1904. Chairman, Dr. George P. Tuttle. Secretary, Dr. A. S. Bleyer, Kings Highway and Delmar boulevard, St. Louis, Mo.
- Milk Commission, City of Cleveland, Ohio.* Organized November, 1904. Chairman, Samuel Mather. Secretary and treasurer, Dr. J. J. Thomas, 1110 Euclid avenue, Cleveland.
- Oakland Home Club Milk Commission, Oakland, Cal.* Organized December, 1904. Chairman, Dr. C. Annette Buckel. Secretary, Dr. Sarah I. Shuey, 952 Fourteenth street, Oakland.
- Milk Commission of Syracuse Academy of Medicine, Syracuse, N. Y.* Organized 1905. Chairman, Dr. A. Clifford Mercer. Secretary, Dr. Albert S. Hotaling, 801 East Genesee street, Syracuse.
- Milk Commission of the Onondaga Medical Society, Syracuse, N. Y.* Organized 1905. Chairman, Dr. A. Clifford Mercer.
- Milk Commission of San Francisco County Medical Society, San Francisco, Cal.* Chairman, Dr. Alfred B. Spaulding, 2510 Washington street, San Francisco.
- Milk Commission of the Academy of Medicine, Cincinnati, Ohio.* Organized June, 1906. Chairman, Dr. Alfred Friedlander. Secretary, Dr. Otto P. Geier, 124 Garfield place, Cincinnati.
- Milk Commission of the Suffolk District Medical Society, Boston, Mass.* Chairman, Dr. John Lovett Morse. Secretary, Dr. Wilder Tileston, 117 Beacon street, Boston.

Milk Commission of the Cambridge (Mass.) Medical Improvement Society, Cambridge. Organized June, 1906. Chairman, Dr. William D. Swann. Secretary, Dr. Albert P. Norris, 760 Massachusetts avenue, Cambridge.

Milk Commission of Jefferson County Medical Society, Louisville, Ky. Organized September, 1906. Chairman, Dr. Cuthbert Thompson. Secretary, Dr. Ben Carlos Frazier, 239 Chestnut street, Louisville, Ky.

Milk Commission of Akron, Ohio. Organized 1907. Chairman, Dr. E. M. Weaver, 500 Everett Building, Akron.

Milk Commission of Toledo, Ohio. Organized 1907. Chairman, Dr. William C. Chapman. Secretary, Dr. Charles W. Moots, Madison court, Toledo.

Milk Commission of Jackson County Medical Society, Jackson, Mich. Organized June, 1907. President, Dr. E. B. Robinson.

Milk Commission (Medical) of Montgomery County, Dayton, Ohio. Organized 1907.

Milk Commission (Medical) Wayne County, Detroit, Mich. Organized 1907.

Medical Milk Commission of Summit County, Akron, Ohio. Organized 1907.

Kansas City Pure Milk Commission, Kansas City, Kans. Organized 1907.

Rutland County Medical Milk Commission, Rutland, Vt. Organized 1907.

Broome County Medical Milk Commission, Binghamton, N. Y. Organized April, 1908.

Allegheny County Medical Milk Commission, Pittsburg, Pa. Chairman, Dr. Ogden M. Edwards, jr. Secretary, Dr. William H. Cameron, 421 Butler street, Pittsburg.

ASSOCIATIONS OF BREEDERS OF PUREBRED DAIRY ANIMALS.

The interests of the different breeds of dairy cattle are in charge of organizations of breeders which determine purity of breeding, verify pedigrees, register eligible animals, and publish herdbooks. Some of them record and publish sales and transfers and attested records of dairy performances. They also establish standards of excellence. The details of the work are usually left to the secretary. The names of the various associations and the addresses of the secretaries are as follows:

Ayrshire Breeders' Association. Secretary, C. M. Winslow, Brandon, Vt.

Brown Swiss Breeders' Association. Secretary, C. D. Nixon, Owego, N. Y.

Dutch Belted Cattle Association of America. Secretary, H. B. Richards, Easton, Pa.

American Guernsey Cattle Club. Secretary, William H. Caldwell, Peterboro, N. H.

Holstein-Friesian Association of America. Secretary, F. L. Houghton, Brattleboro, Vt.

American Jersey Cattle Club. Secretary, J. J. Hemingway, 8 West Seventeenth street, New York, N. Y.

In addition to the strictly dairy cattle named above, some breeds, primarily developed for beef production, are occasionally bred and used as dairy cattle. Their associations are as follows:

American Devon Cattle Club. Secretary, L. P. Sisson, Newark, Ohio.

American Polled Durham Breeders' Association. Secretary, J. H. Marts, Greenville, Ohio.

Red Polled Cattle Club of America. Secretary, H. A. Martin, Gotham, Wis.

American Shorthorn Breeders' Association. Secretary, John W. Groves, 17 Exchange avenue, Union Stock Yards, Chicago, Ill.

The following breeds are of practical dairy value, although not yet officially certified as purebred:

The American Polled Jersey Cattle Club. Secretary, Charles S. Hatfield, R. F. D. 4, Springfield, Ohio.

American Milch Goat Record Association. Secretary, W. A. Shafor, Hamilton, Ohio.

WORK OF THE DAIRY DIVISION.

ED. H. WEBSTER, *Chief.*

The Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture, is engaged in various lines of educational and research work. Information is collected and distributed concerning all branches of dairying, including the care and improvement of dairy cattle and the production, care, and distribution of dairy products. Statistics are compiled relative to dairy organizations, dairy schools, facilities for technical instruction, State and municipal laws, development of markets, milk supply of cities, and the organization of creameries and cheese factories. Eighty persons are employed.

The work is grouped into five main sections, each of which is in charge of one man who is directly responsible for the work conducted.

DAIRY FARMING INVESTIGATIONS.

This work includes problems in the housing and feeding of dairy cattle, remodeling old barns and building new ones, the construction of silos, the selection and breeding of dairy herds, and attending farmers' institutes and other agricultural meetings. The policy has been to call the attention of the farmer to some one thing in the way of needed improvement and to get him to do that first. After he has adopted this suggestion, other things are pointed out as fast as he will undertake them. Farmers are assisted in keeping records of their herds, securing good bulls, and finding markets for their product. A special effort has been made to assist the agricultural colleges in the South in extending their work in dairying through short courses particularly adapted to the needs of the farm dairyman.

DAIRY PRODUCTS INVESTIGATIONS.

This includes studies in the manufacture, handling, and distribution of all dairy products. Investigations are conducted for the purpose of devising better methods of manufacture of butter in both whole milk and gathered cream factories and for the study of problems involved in its storage and transportation. Special study is made of the control of moisture in butter, the effect of varying amounts of salt, methods of scoring, bacteriological and chemical analyses, and the causes of and remedies for taints and defects. Investigations have been carried on for some time relative to "fishy" flavor of butter, which causes a loss to dealers of many thousands of dollars annually. Experiments have been made concerning the amount of acidity in cream and its effect upon the keeping quality of butter. The Dairy Division has under its control cold-storage rooms in Chicago admirably adapted to storage experiments with dairy products, where temperature can be carried at a very uniform level throughout the year.

Laboratories for butter and cheese investigations are established at Albert Lea, Minn., in cooperation with the Minnesota Experiment Station, and arrangements are made with the Albert Lea Dairy Association for furnishing a supply of milk for experimental purposes. Bacteriological and chemical laboratories have been built and equipped on the creamery grounds.

Cheese investigations consist of three general lines: Soft-cheese investigations at Storrs, Conn.; Cheddar cheese investigations at Madison, Wis., and Swiss cheese investigations at Albert Lea, Minn. A study is made of methods of manufacture, machinery, problems involved, curing and storage, and markets at home and abroad.

The division is cooperating with the Missouri Experiment Station in investigating the variations in normal milk as affected by feed, peculiarities of breed, gestation, period of lactation, and climatic influences. Special study is made of the composition of butterfats, the comparative size of fat globules from milk of different breeds,

the coloring matter of milk, and the proportions of casein and albuminoids. The ultimate object of this work is to determine the formation or origin of milk and the possible control of its constituents by scientific methods of feeding and handling dairy cattle. It will require several years to verify and complete the work.

DAIRY MANUFACTURES.

The work in this section is almost entirely educational, the object being to put into actual practice the experience and facts obtained from research investigation. A large amount of correspondence is conducted with thousands of creameries and cheese factories, and assistance is given in improving methods of manufacture, preventing losses, keeping accurate records, and conducting the work on a paying basis. The Dairy Division maintains offices in New York City, Chicago, and San Francisco, with a butter expert in each place whose special duty it is to inspect the butter received at those markets and to give helpful suggestions to butter makers and creamery managers. When requested by the shipper, the experts in the Dairy Division examine a shipment on its arrival at market and promptly send to him information as to its condition and quality. If the butter is not satisfactory, they state what the defects are and make suggestions for overcoming the trouble. Many commission men have reported that the services of the inspectors have resulted in much good in the general improvement of the quality of the butter received on the market. A system of score cards for indicating the sanitary condition of creameries and the ability of creamery men to conform to the standard regulations has been worked out by the Dairy Division and adopted by a number of the State dairy and food commissions. Inspectors are also engaged in examining butter collected for educational purposes by State authorities and in investigating the general system of scoring butter in the markets. Cooperation is maintained with the State dairy and food departments for the improvement of butter.

MARKET MILK INVESTIGATIONS.

This work is largely educational and cooperative with the health authorities of various States and cities throughout the country. A general educational campaign is conducted through correspondence, personal visits by dairy inspectors, and holding dairy meetings and milk contests. Assistance is given, when possible, to improve the methods of production, handling, and distribution of market milk. The Dairy Division is now cooperating with about one hundred and forty cities in this work. Frequently special meetings are held with physicians and boards of health for the purpose of taking up in detail special features in which these bodies are interested from legislative and administrative standpoints. Assistance is frequently given in preparing milk ordinances, and rules and regulations for their enforcement. The Dairy Division has prepared a score card for rating the sanitary condition of dairy farms, the equipment used, and methods of handling milk, which has met with general favor and has been adopted in about sixty cities. Some 10,000 dairy farms were scored by this system last year.

Another feature of the educational work is the conducting of milk contests. The first was held in connection with the National Dairy Show in Chicago under the auspices of the Dairy Division, February, 1906. The object of these contests is entirely educational. The dairymen are given an opportunity to send their product and have it analyzed and criticized by experts, the defects pointed out, and suggestions made for a remedy. This first contest was the beginning of a work which has gradually been extended during the past two years. Similar contests have been held in connection with dairy associations in Massachusetts, New Hampshire, Pennsylvania, Connecticut, Illinois, Ohio, Michigan, and Missouri, and have been productive of much good in the improvement of the milk supply. In addition to State contests, two contests have been held in the city of Cleveland, conducted jointly by the chamber of commerce, the city health department, and the Dairy Division.

One of the most practical features of the work of improving the milk supply is that of assisting dairy farmers through personal demonstration on their own farms. The whole time of one man is devoted to such work. He is equipped with an outfit for bacteriological work, and after finding a farmer who desires assistance he locates on his farm, staying several weeks if necessary, assisting in improving the sanitary conditions of the dairy, and handling the milk in the simplest way possible to secure good results. Best methods of sterilizing utensils, milking, cooling, and transportation are worked out to suit local conditions.

RENOVATED BUTTER INSPECTION.

Under the act of Congress of May 9, 1902, the inspection of renovated butter and of the factories producing the same have been in charge of the Dairy Division. Inspections for export are also made at Chicago, New York, and Boston. The sanitary condition of factories is rated on the basis of a score card prepared by the division, and the factories are required to keep up the standard established in this respect. The quality of the packing stock or material used in the manufacture of renovated butter is also carefully examined and passed upon by the inspectors. Three men are engaged in this inspection work, and monthly inspections are made of all factories.

WORK OF THE NATIONAL FARMERS' INSTITUTE SPECIALIST IN THE INTEREST OF DAIRYING.

By JOHN HAMILTON,

Farmers' Institute Specialist, Office of Experiment Stations.

The Farmers' Institute work of the Office of Experiment Stations, United States Department of Agriculture, has no relation to the dairy industry that is special, its specific work being "to secure information respecting farmers' institutes and similar agricultural organizations in this and foreign countries, with special suggestions of plans and methods for making such organizations more effective for the dissemination of the results of the work of the Department of Agriculture and the experiment stations and of improved methods of agricultural practice."

The Office, however, has had prepared special bulletins giving information to dairy people with a view to furnishing a model form of presentation that can be adopted in the teaching of this subject. A syllabus of a lecture upon the "Care of milk" was prepared for the Office by Prof. R. A. Pearson, of Cornell University, illustrated by 44 lantern slides, and another illustrated lecture accompanied by 50 lantern slides upon "Silage and silo construction for the South" was prepared for the Office by Prof. A. M. Soule, formerly director of the Virginia Agricultural Experiment Station. These lectures have been highly appreciated by dairy instructors and have fully met the expectations of the Office.

A more extended bulletin was prepared for the Office by Dr. L. L. Van Slyke, chemist of the New York State Agricultural Experiment Station, upon "Cheese-making," the purpose being to provide more extended instruction than was possible to be given in a single lecture. This bulletin outlines a course in cheesemaking adapted to giving instruction on this subject in movable schools of agriculture, and consists of 14 lectures accompanied by 14 distinct practicums, together with lists of references to literature on the subject as well as a list of books intended for library use by the students. The plan consists in the formation of classes of not less than eight nor more than fifteen persons who are interested in cheesemaking, and giving them instruction on this subject continuing for fourteen days, one lecture each day, each lecture to be accompanied by a practicum by the students of from two to four hours' duration under the supervision of the lecturer. The instructor is expected also to visit students at their homes, and give such particular assistance and advice for the making of cheese as may be best adapted to their individual circumstances and needs.

Through the instrumentality of these schools it is believed that large numbers of young men and women who take advantage of the expert teaching thus provided will receive impressions and acquire facility in doing the things taught which will result in a greatly improved agricultural practice. The references given constitute a course of reading on cheese making which will enable the student to greatly extend his knowledge of this subject outside of the movable school if he desires to do so. The student is expected to consult the references before the practice exercise is taken up, and that he may do this with facility a syllabus embracing the points to be considered and indicating the pages and paragraphs in various publications is furnished to each member of the class at the close of each lecture. A system of practicums has been prepared for the purpose of impressing the truths that the lecturer presents. These will occupy the greatest portion of the time given to instruction, and each student is expected to perform all of the operations that the practicum requires. This course is well adapted for use in short course work in colleges and high schools as well as for the movable schools for which it was specially prepared.

COW TEST ASSOCIATIONS.

A new line of activity has begun in a few States in the establishment of cooperative cow-testing associations. These are self-supporting associations of dairymen who organize for the purpose of determining by monthly tests the productiveness of the individual cows in their herds, with the view to improving the economic production of milk and butterfat through the selection of the most economical producers for breeding purposes. While this is new work in this country, such associations were established in the dairy sections of the Old World in 1895, and have been a means of materially increasing the profits in dairying through a more economic utilization of the feed and by an increased production per cow.

The first association in America was formed September 26, 1905, in Fremont, Newaygo County, Mich., through the efforts of the State dairy and food department. Since that date three others have been organized in Michigan and three in Maine. The general plan of organization is as follows: A few farmers in a community owning a sufficient number of cows simply meet and organize under the laws of the State, elect officers, and hire a competent man to do the testing. The expense to be paid pro rata by each man in proportion to the number of cows he owns. It is desirable to have a sufficient number of cows in the association so that the expense will not exceed \$1 to \$1.50 per cow a year. The tester visits one herd a day. He arrives in the afternoon, sees the cows milked, weighs the milk, takes a sample from each cow, estimates the feed and the cost, both night and morning. Then he tests the milk of each cow and figures out the cost of the ration, leaving a record with the farmer. This farmer then takes him and his outfit to the next farmer, and so on. He gets to each farm every month, so that a farmer has monthly records each year. At the end of the year the tester figures up the yield of milk and butterfat and the value of the same, the cost of feed to maintain each cow a year, and figures out the profit or loss on each individual in the herd, and furnishes every patron with this complete record. The cow-test association practically tells every dairyman, at a cost of \$1 to \$1.50 per cow, just exactly how much profit he is making on each cow in his herd.

Approved: .

JAMES WILSON,

Secretary of Agriculture.

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